

Listing of Claims:

Claim 1 (previously presented) In a solid-state radiation detector using a single crystal that comprises the compound semiconductor InSb as the matrix, the improvement wherein the single crystal is one of high-purity InSb that is not artificially doped with impurities, a surface barrier layer being formed on top of the high-purity InSb single crystal to fabricate a semiconductor device provided with diode characteristics and which is operated at a temperature between 2 K and 50 K.

Claim 2 (previously presented) In a solid-state radiation detector using a single crystal that comprises the compound semiconductor InSb as the matrix, the improvement wherein the single crystal is one of high-purity InSb that is not artificially doped with impurities, a pn junction being formed in the high-purity InSb single crystal to fabricate a semiconductor device provided with diode characteristics and which is operated at a temperature between 2 K and 115 K.

Claim 3 (cancelled)

Claim 4 (previously presented) The solid-state radiation detector according to claim 2, wherein the formation of a pn junction involves thermal diffusing of Sn to form an n-type electrode.

Claims 5-6 (cancelled)